# FROM CONCEPT TO REALITY - ONRIFO LAUNCHES THE FIRST INDIAN OCEAN GLOBAL OCEAN OBSERVING SYSTEM (IOGOOS)

CDR Christopher L. Butler, USN
Office of Naval Research International Field Office - Europe
Ocean, Atmosphere and Space S&T Focus Area
223 Old Marylebone Road, London NW1 5TH U.K.
Tel. +44- 207-514-4948, Fax. +44-207-514-4980, Email: **metoc@onrifo.navy.mil**
http://www.onrifo.navy.mil

Dr Douglas Edsall
Office of Naval Research International Field Office - Tokyo
Ocean, Atmosphere and Space S&T Focus Area
7-23-17 Rappongi, Minato-ku, Tokyo 106-0032, Japan
Tel. + 81334018924, Fax: 83134039670, Email: **edsalld@onrasia.navy.ml**
http://www.onrifo.navy.mil

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**MM/SR - Conference Report News Headlines** The First Indian Ocean Global Ocean Observing System established. Implementing strategy in place. The U.S. Office of Naval Research International Field Office (ONRIFO) plays key role is sparking the fire that launched the event. Several Pilot Projects presented for future collaborative research.

## EXECUTIVE SUMMARY OF SCIENTIFIC / TECHNICAL RESULTS

A Regional Alliance in the Indian Ocean Region for Global Ocean Observing System was established with the signing of a Memorandum of Understanding (MOU) during the First Indian Ocean Global Ocean Observing System (IOGOOS) Conference, held in Grand Bay, Mauritius 2-9 November 2002. A 'Development Committee' chaired by India and with senior representatives from oceanographic institutions of Australia, Indonesia, Iran, Kenya, Seychelles and Tanzania as members, undertook the task. The signing of this MOU, along with the presentation of a proposed implementation strategy, are major milestone towards understanding the oceanic processes of the Indian Ocean and their application for the benefit of all people in the region. International programs including 'Coastal GOOS', the 'Harmful Algal Bloom' program, the 'Climate Variability' program, ARGO, the "Joint Commission on Oceanography and Marine Meteorology', the 'Land Ocean Interaction in the Coastal Zone' project, the 'Western Indian Ocean Marine Application Project' and the 'International Ocean Data Exchange' program were represented. The IOGOOS conference brought together countries with scientific interest in the Indian Ocean, and enabled the establishment of new contacts, the reinforcement of existing ones, and the development of pilot projects that demonstrated the relevance of sustained observation of the oceanographic properties in the region. Conference chair, William Erb (Intergovernmental Oceanographic Commission Perth Australia branch), and conference host Dr. Ranadhir Mukhopadhyay Director of the Mauritius Oceanography Institute, praised ONRIFO for its timely

assistance, and key role in taking this conference from concept to reality. They report that it was the ONRIFO contributions (co-planning) and responsiveness of collaboration funding programs, which were the deciding factors that rallied the other sponsoring and organizing agencies to launch the event. The ONRIFO funds contribution was 13 percent of the total budget, yet it was sufficient enough to spark the fire that launched the First IOGOOS Conference that brought together approximately 150 ocean, atmosphere and space scientists from 33 nations, enhancing global S&T connectivity.

## SCIENTIFIC PROGRAM

For final agenda, list of lectures, titles, authors, poster/exhibition sessions see: http://ncb.intnet.mu/pmo/moi/download/iogoos.doc

## TRENDS AND HIGHLIGHTS

The conference was an opportunity to begin building bridges between the above-mentioned programs and projects and across the full range of GOOS activities including climate, coastal and ecosystem interests and capacity building. Time was available for meetings and workshops related to the various programs, which were generally open to all participants. The purpose of the meetings was to develop the structure of IOGOOS, identify the facilities, assets, and mechanisms for products development, and identify pilot projects. The conference brought together a variety of people from the fields of hydrography, physical oceanography, meteorology, remote sensing, coastal ecosystems, fisheries, coastal zone management, etc. Initial planning for regional capacity building included a seminar on applications of data from satellite observations and potential uses of the products from Global Ocean Data Assimilation Experiment (GODAE).

CDR C.L.Butler, USN, provided INDIAN OCEAN METEOROLOGICAL INSTRUMENT (IOMI) Keynote presentation on behalf of ONR HQ Space Program. The IO region will have scientific opportunity, beginning 2006, to utilize an IR hyperspectral imager. A new infrared hyperspectral imager with advanced capabilities will be placed in geosynchronous orbit at 75 E. The first such instrument ever launched, the Indian Ocean Meteorological Instrument (IOMI) will produce hourly images in which each pixel contains 2100 infrared channels. Future military weather systems will benefit greatly from the demonstration of these technologies. IOGOOS members can apply this information freely to current and future problems affecting their country.

CDR C.L.Butler, USN, and Dr. D. Edsall of the ONRIFO chaired a special session on INTERNATIONAL SCIENTIFIC AND TECHNICAL CO-OPERATION. The goals of the **International S&T Collaboration Roundtable were to:** (i) provide a forum for discussing areas of potential collaboration between regional and international institutes. (ii) Identify innovative and unique Indian Ocean regional facilities, data, and approaches for environmental characterization within the region (such as unique environmental data sets, data assimilation efforts, model enhancements initiatives, coastal dynamics, and unique sensors/systems or platforms). (iii) Present international S&T collaboration-funding programs that facilitate advancements in science and technology.

CDR C.L. Butler outlined the purpose and tasks of the ONRIFO. ONRIFO's particular interest in, and support of, the Conference was threefold: (i) to identify research facilities and scientific expertise; (ii) to outline possible funding of future research and, (iii) to suggest areas of research interest; and to assist in the elaboration of research proposals and in the acquisition of US collaborators for the proposed projects. The fact that ONRIFO was interested in collaboration on any state-of-the-art

project proposal of specific interest to the US Navy was stressed. ONRIFO invited participants with even tentative proposals to get in touch, at any time during the Conference or afterwards, as an opportunity to discuss collaborations of mutual benefit, leading to co-planning and co-development in the Indian Ocean Region. ONRIFO suggested that one potential area of collaboration was Meteorology and Oceanography (MetOc) model verification and validation efforts, given the availability of numerous US Navy global MetOc models. Specific model products could be made available to regional experts in exchange for testing, evaluation and validation using local data.

Five short presentations on existing programs relevant to the Indian Ocean followed:

1. Shubha Sathyendranath described the purpose and tasks of a recently founded non-governmental organization: Partnership for Observation of the Global Oceans (POGO). POGO's membership comprises 50 institutions and organizations, including three from the Indian Ocean: the National Institute of Oceanography (Goa, India); Commonwealth Scientific and Industrial Research Organization (CSIRO, Australia); and the University of Cape Town. POGO promotes observations and improvement of scientific knowledge, interprets scientific and technical results for policy-makers, enhances public awareness, and provides training and technology transfer. POGO also supports summer courses, fellowships, workshops, and the ARGO program (Argo is a broad-scale global array of temperature/salinity profiling floats). It is looking for increased participation by Indian Ocean groups and institutions.

2. Nilan Wikramanayake briefly described a project funded by the Asian Pacific Network for Global Change Research. Five countries—India, Pakistan, Bangladesh, Nepal, and Sri Lanka—undertook small-scale studies of sediment sources and movement, and of the impact of fertilizers in the southeast Asia coastal zone. Capacity-building and regional studies on coastal zone fluxes are also envisaged.

3. Yuichiro Kumamoto described the Operation Magellan 2003-2004, a Japanese Marine Science and Technology Centre (JAMSTEC) round-the-world expedition starting in Brisbane and ending in Fremantle, Australia, in which hydrographic and benthic sampling will be carried out in the southern hemisphere, in all three major oceans. JAMSTEC is seeking scientific participation of scientists of the IOGOOS region in the Indian Ocean leg of this cruise.

4. Mark Jury presented the Indian Ocean Observation Strategy which includes, among other activities, three regional pilot projects: Storm surges in the Bay of Bengal; the Western Indian Ocean Marine Application Project (WIOMAP); and the Indian Ocean Moored Array Project (I-MAP). The Bay of Bengal storm-surge project is important because of the tremendous loss of life and property from such surges. IMAP is proposing 9 deep-sea moorings, involving Australia, France, India and the USA. WIOMAP seeks to enhance coastal observations and the training of local people in oceanography and meteorology. I-MAP also involves WIOMAP countries.

5. Tony Ribbink informed the Workshop of the project now being undertaken on the coelacanth off the east coast of southern Africa; he stressed that the wide interest in this "fossil" fish facilitated the ecological study of this species, which in turn provided a good basis for environmental assessment and monitoring of part of the coastal zone, promoted public awareness, and facilitated relevant capacity-building.

Several other project proposals were discussed and received as result of this session.

The Government of India had a tour of its research vessel "R. V. Sagar Kanya", which sailed from India to Mauritius, conducting research enroute, with scientists invited to join the cruise.

**ORV SAGAR KANYA**

To learn more about this research vessel's characteristics, capabilities, and equipment, and to view the research track to Mauritius see: http://www-indoex.ucsd.edu/sagarkanya.html

A list of conference participants with contact information can be found at http://www.onrifo.navy.mil/reports/2002/LIST_OF_IOGOOS_PARTICIPANTS_NEW.doc. Web links to organizations represented at the conference can be found at: http://www.onrifo.navy.mil/reports/2002/IGOOSOrganizationsWebsites.doc.

## PROCEEDINGS

The full *Intergovernmental Oceanographic Commission (IOC) report* of the conference is in preparation and should be available in draft in several weeks and printed in early 2003. To order your copy, contact William Erb, Head, IOC Perth, Regional Programme Office, P.O. Box 1370, West Perth, WA 6872, Australia, email, w.erb@bom.gov.au.

## ASSESSMENT

The Indian Ocean is the third largest Ocean in the world and it is unique in many ways. The lives of a least 1.5 billion people are influenced by the Indian Ocean. It has been found that the Indian Ocean plays a fundamental but as yet poorly understood role in controlling regional and global climate. This forum provided a unique opportunity for scientists to present the latest findings of their research works carried out in the region and discuss oceanographic activities, including, enhancement of the ocean observing system in this least observed ocean. The Indian Ocean and associated seas are regions of high naval interest, characterized as environmental "data sparse" areas per NAVOCEANO and

CNMOC databases. This S&T collaboration initiative will facilitate future naval operations in the Indian Ocean, Arabian Gulf, and Red Sea by potentially providing real-time environmental data for assimilation into Navy Models and prediction systems.

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